



College of Engineering & Technology

Department: Mechanical Engineering
Lecturer: Dr. Rola Afify
Course Code: ME362

Marks: 15
Time: 8:30 – 10:00
Date: 13/3/2016

Name:

R.N.:

Answer the following questions:

Question one (10 marks)

A) Define:

- Density:

- Specific gravity:

- Viscosity:

B) Show whether the equation $P = P_o + \frac{1}{2} \rho v^2 + \rho g z$ satisfies the principle of dimensional homogeneity. Where P and P_o are pressures in Pascal, ρ is the density in kg/m^3 and z is the vertical length.

C) Sketch the relation between viscosity and temperature for a certain fluid.

Question one (5 marks)

Determine the constant speed with which the disk shown in Figure will move down on the inclined surface if the 0.02-cm gap between the disk and the surface contains oil having viscosity of 0.5 poise. The disk is 50 cm diameter and weighs 120 N.

